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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,925	07/17/2003	Andrew Harvey Barr	200308576-1	2574

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EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,925

Applicant(s)

BARR ET AL.

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/17/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: The name and residence of the first named inventor are garbled most likely due to a copying/printing malfunction.

Drawings

The drawings are objected to because the sectional views are not properly crosshatched (see MPEP 608.02). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the

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examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The

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disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of the use of the phrase "A printed circuit board comprises". Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,229,095 (hereafter Koybayashi).

Koybayashi discloses, referring to figure 3, a printed circuit board comprising: a first conductive plane (2210); a second conductive plane (2220) substantially parallel to the first conductive plane; a via signal barrel (211) transecting the first and second conductive planes; a first anti-pad positioned between the first conductive plane (271) and the via signal barrel, the first anti-pad having a first voided area; and a second anti-pad (272) positioned between the second conductive plane and the via signal barrel, the second anti-pad having a second voided area; wherein the first voided area does not completely overlap the second voided area (see col. 35-65) [claim 1], wherein the first

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conductive plane comprises one of a power plane and a ground plane (see col. 7, lines 50-55) [claim 2], wherein the second conductive plane comprises one of a power plane and a ground plane (see col. 7, lines 50-55) [claim 3], wherein the first and second anti-pads are partially voided anti-pads [claim 5]. Regarding the limitations “wherein the first and second anti-pads are configured to maintain board planarity” and “wherein the first and second anti-pads are configured for signals through the via signal barrel greater than approximately 2 GHz”, Examiner notes that these are intended use limitations and thus only considered to the extent that a potential prior art be capable of performing the claimed function. In the instant case, Applicants’ claimed invention and the prior art have the same structural features, therefore it is concluded that the prior art is indeed capable of being used as currently claimed.

Claims 1, 8-13, 15, 18-20, 22, 24, 25, and 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,538,538 (hereafter Hreish).

Hreish discloses, referring to figure 12, a printed circuit board comprising; a first conductive plane (87 near 74); a second conductive plane (87 near 78) substantially parallel to the first conductive plane; a via signal barrel (86) transecting the first and second conductive planes; a first anti-pad positioned between the first conductive plane and the via signal barrel, the first anti-pad having a first voided area; and a second anti-pad positioned between the second conductive plane and the via signal barrel, the second anti-pad having a second voided area; wherein the first voided area does not completely overlap the second voided area [claim 1].

Additionally, Hreish discloses, referring to figure 12, a printed circuit board comprising: a first conductive plane (87 below layer 74); a second conductive plane (87 above layer 78) substantially parallel to the first conductive plane; a via signal barrel (86) transecting the first and second conductive planes; a first partially voided anti-pad positioned between the first conductive plane and the via signal barrel, the first partially voided anti-pad having a first pattern and a first orientation; and a second partially voided anti-pad positioned between the second conductive plane and the via signal barrel, the second partially voided anti-pad having a second pattern and a second orientation; wherein the first orientation is offset from the second orientation (see fig. 12) [claims 8, 24], wherein the first and second partially voided anti-pads are configured to maintain planarity of the printed circuit board [claims 9, 25], wherein the first and second patterns are substantially identical [claim 10], wherein the first and second partially voided anti-pads are configured for signals through the via signal barrel greater than approximately 2 GHz [claims 11, 31], wherein the first pattern comprises one of a symmetric pattern and an asymmetric pattern [claims 12, 28], wherein the first pattern comprises one of a concentric circles pattern, a radial spokes pattern, and an arbitrary pattern [claims 13, 29], wherein the first pattern comprises a screen pattern [claims 14, 27, 30].

Similarly, Hreish discloses, referring to figure 12, a printed circuit board comprising: a first conductive plane (87 near 74); a second conductive plane (87 near 78) substantially parallel to the first conductive plane; a first via signal barrel (86) transecting the first and second conductive planes; a first anti-pad positioned between

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the first conductive plane and the first via signal barrel, the first anti-pad having a first length and a first width and a first orientation; and a second anti-pad positioned between the second conductive plane and the first via signal barrel, the second anti-pad having a second length and a second width and a second orientation, wherein the first orientation is offset from the second orientation [claim 15], wherein the first and second anti-pads are configured to maintain planarity of the printed circuit board [claim 18], wherein the first and second anti-pads are configured for signals through the first via signal barrel greater than approximately 2 GHz [claim 19], wherein the first length substantially equals the second length and the first width equals the second width [claim 20], wherein the first orientation is substantially perpendicular to the second orientation [claim 22].

24. A method for forming a printed circuit board, comprising: providing a first conductive plane; providing a second conductive plane substantially parallel to the first conductive plane; forming a via signal barrel transecting the first and second conductive planes; forming a first anti-pad positioned between the first conductive plane and the via signal barrel, such that the first anti-pad has a first orientation and a first void; and forming a second anti-pad positioned between the second conductive plane and the via signal barrel, such that the second anti-pad has a second orientation and a second void; wherein the first orientation is offset from the second orientation; and wherein the first void does not completely overlap the second void.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4, 16, 17, 21, 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hreish.

Hreish discloses the claimed invention as described above except Hreish does not specifically state that the pads are oval shaped [claim 4, 16, 17, 21, 26]. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to form the pads in an oval shape since the oval shape is well known in the art. The

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motivation for doing so would have been to provide a holes large enough to prevent contact with the via yet small enough to not waste vital board 'real estate'. Moreover, it has been held that more than a mere change of form is necessary for patentability.

Span-Deck, Inc v. Fab-Con, Inc. (CA 8, 1982) 215 USPQ 835.

Regarding claim 23, Hreish discloses the claimed invention as described above except Hreish does not specifically disclose, a second via signal barrel parallel to the first via signal barrel and transecting the first and second conductive planes', a third anti-pad positioned between the second via signal barrel and the first conductive plane, the third anti-pad having a third orientation', and a fourth anti-pad positioned between the second via signal barrel and the second conductive plane, the fourth anti-pad having a fourth orientation', wherein the first and third orientations are substantially identical and adapted to allow a signal trace between the first and third anti-pads on an adjacent signal plane. However, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to perform such a modification since the modification involves a simple duplication of parts. The motivation for doing so would have been to provide a second via for simultaneous signal transmission, thus making the device more efficient. Furthermore, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co, v. Bemis Co.*, 193 USPQ 8.

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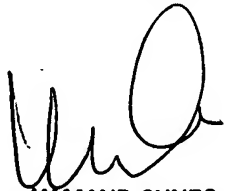
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCSN


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